

CLAIMS

What is claimed is:

1. A method of managing data associated with a given domain, comprising the steps of:
 - 5 maintaining a specification of data attributes representing one or more types of data to be managed;
 - maintaining a specification of algorithms representing one or more types of operations performable in accordance with the data attributes; and
 - maintaining a specification of relationships representing relationships between the
 - 10 data attributes and the algorithms;
 - wherein the data attribute specification, the algorithm specification and the relationship specification are maintained in a storage framework having multiple levels, the multiple levels being specified based on the given domain with which the data being managed is associated.
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2. The method of claim 1, wherein the multiple levels of the storage framework comprise hierarchical levels such that one level of the storage framework is a refinement of another level of the storage framework.
- 20 3. The method of claim 1, wherein the hierarchical levels of the storage framework maintain at least one of the data attributes, the algorithms and the representations in a template-based representation.
4. The method of claim 1, wherein data attributes are represented so as to expose
- 25 at least one of a nature of the data through a plurality of ontologies, a structure of the content of the data, and a structure of a mechanism by which the data may be retrieved.

5. The method of claim 1, wherein the algorithms are represented so as to expose at least one of a nature of the algorithms through a plurality of ontologies, a structure of parameters of the algorithms expressed according to a nature of the data attributes, and a structure of a mechanism by which code for the algorithms may be retrieved.

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6. The method of claim 1, wherein the relationships between the data attributes and the algorithms are represented in support of a plurality of computations for computing domain-specific results.

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7. The method of claim 1, further comprising the step of, in accordance with an application, retrieving at least a portion of the data attributes and the algorithms to perform a computation sequence.

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8. The method of claim 7, wherein the computation sequence is based on a specification of a computation start point and a computation end point as described by a data flow graph.

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9. The method of claim 1, further comprising the step of, in accordance with an application, one of creating and managing templates.

10. The method of claim 1, further comprising the step of, in accordance with an application, one of populating and managing a template instance for a particular template.

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11. The method of claim 1, wherein relationships between data attributes which support non-processing relationships are maintained in support of a plurality of functions.

12. The method of claim 1, wherein the data attributes and the algorithm are verifiable with respect to at least one of consistency and correctness.

13. The method of claim 1, further comprising the step of deferring a decision as to whether to apply a computation step in support of a desired result from a computation sequence in accordance with metadata within the storage framework.

5 14. The method of claim 1, wherein a relationship is maintained between data at a domain specification level of the storage framework and an instance specification level of the storage framework.

10 15. The method of claim 1, further comprising the step of, in accordance with an application, traversing one or more processing relationships among a plurality of templates and template instances maintained in accordance with the storage framework so as to ascertain one or more computation relationships.

15 16. The method of claim 1, wherein the given domain comprises a service level management domain.

20 17. The method of claim 16, wherein the service level management domain supports proactive management of a plurality of service level agreements allowing one or more of service level agreement reporting, a customer-related business impact evaluation and a service provider internal business impact evaluation in accordance with relationships represented within flow graphs associated with the storage framework.

25 18. The method of claim 16, wherein the data attributes comprise service level management data elements, the algorithms comprise service level management algorithms, and the relationships comprise service level management relationships.

19. The method of claim 18, wherein the service level management data elements comprise one or more of service level agreement contract data, internal service level management data, and service level management algorithm specifications.

5 20. The method of claim 18, wherein the service level management algorithms comprise one or more of measurement data adjudication and service level evaluation for a particular category of data element.

10 21. The method of claim 18, wherein the service level management relationships comprise evaluation in accordance with flow graph specifications and relationship management between service level agreement data and internal service level management data.

15 22. The method of claim 19, wherein relationships between service level agreement contract data and other service level management data are maintained in support of a plurality of service level management functions.

20 23. The method of claim 16, further comprising the step of, in accordance with an application, traversing one or more service level management related processing relationships among a plurality of templates and template instances maintained in accordance with data flow graphs as maintained within the storage framework so as to ascertain one or more service level management computation relationships.

25 24. The method of claim 16, further comprising the step of prioritizing one or more data access requests based on a service provider business impact assessment to the storage framework so as to sequence data results in accordance with one or more service management objectives.

25. The method of claim 1, wherein data is obtainable from one or more semantically equivalent data sources.

26. The method of claim 1, wherein data is one of original data and derived data,
5 wherein original data is data external to the storage framework and derived data is data maintained within the storage framework

27. Apparatus for managing data associated with a given domain, comprising:
a memory for storing a storage framework; and
10 at least one processor coupled to the memory and operative to: (i) maintain a specification of data attributes representing one or more types of data to be managed; (ii) maintain a specification of algorithms representing one or more types of operations performable in accordance with the data attributes; and (iii) maintain a specification of relationships representing relationships between the data attributes and the algorithms;
15 wherein the data attribute specification, the algorithm specification and the relationship specification are maintained in the storage framework which has multiple levels, the multiple levels being specified based on the given domain with which the data being managed is associated.

20 28. An article of manufacture for managing data associated with a given domain, comprising a machine readable medium containing one or more programs which when executed implement the steps of:

maintaining a specification of data attributes representing one or more types of data to be managed;
25 maintaining a specification of algorithms representing one or more types of operations performable in accordance with the data attributes; and
maintaining a specification of relationships representing relationships between the data attributes and the algorithms;

wherein the data attribute specification, the algorithm specification and the relationship specification are maintained in a storage framework having multiple levels, the multiple levels being specified based on the given domain with which the data being managed is associated.

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29. A data store for use in managing data associated with a given domain, comprising:

a first data storage portion for maintaining a specification of data attributes representing one or more types of data to be managed;

10 a second data storage portion for maintaining a specification of algorithms representing one or more types of operations performable in accordance with the data attributes; and

a third data storage portion for maintaining a specification of relationships representing relationships between the data attributes and the algorithms;

15 wherein the data attribute specification, the algorithm specification and the relationship specification are maintained in accordance with multiple levels, the multiple levels being specified based on the given domain with which the data being managed is associated.

20 30. A method of providing a service for managing data associated with a given domain, comprising the step of:

a service provider providing a data management system in accordance with one or more customers, the data management system being operative to: (i) maintain a specification of data attributes representing one or more types of data to be managed; (ii)

25 maintain a specification of algorithms representing one or more types of operations performable in accordance with the data attributes; and (iii) maintain a specification of relationships representing relationships between the data attributes and the algorithms; wherein the data attribute specification, the algorithm specification and the relationship

specification are maintained in a storage framework having multiple levels, the multiple levels being specified based on the given domain with which the data being managed is associated.

5 31. The method of claim 30, wherein service level agreement report data is generated for a customer in accordance with one or more clauses of a service level agreement such that the one or more clauses are mapped to service level agreement data and is associated with a service provider representation of the data using one or more relationship mappings and service level agreement report data is generated in accordance
10 with a sequence of processing relationships.

 32. The method of claim 30, wherein customer business impact assessment data is generated for a customer in accordance with one or more expressed wishes of a customer such that one or more business impact evaluation data wishes of the customer
15 are mapped to customer-related business impact data and is associated with a service provider representation of service level management data using relationship mappings and the customer-related data is generated in accordance with a sequence of processing relationships.

20 33. The method of claim 32, wherein the business impact evaluation data may provide a customer with one or more customer relevant business impact assessments.

 34. The method of claim 33, wherein the one or more customer relevant business impact assessments comprise one or more customer relevant what-if scenario result data
25 sets.

 35. The method of claim 30, wherein service provider business impact management data is generated for a customer in accordance with one or more wishes of

the service provider such that the one or more service provider business impact evaluation data wishes are mapped to provider-facing business impact data and is associated with a service provider representation of service level management data using relationship mappings and service level management business impact data of the service
5 provider is generated in accordance with a sequence of processing relationships.

36. The method of claim 35, wherein business impact evaluation data provides a service provider with one or more provider relevant business impact assessments.

10 37. The method of claim 35, wherein the one or more provider relevant business impact assessments comprise one or more what-if scenario result data sets and aggregations of business impact across multiple customers.